**The Role of NINDS T32 Programs in Training a Diverse Workforce**

The NINDS is committed to the development of a biomedical research workforce that is representative of the diversity in American society. NINDS seeks to promote diversity in all of its training and research programs and to increase the participation of underrepresented groups.

As the US population becomes increasingly diverse, reflection of that diversity among the biomedical research workforce is vital to our science enterprise and the NIH research mission. There are compelling reasons to promote a diverse workforce and increase participation by underrepresented groups. Advancing diversity through NINDS individual and institutional programs, like the T32, is expected to produce a number of tangible and overlapping benefits:

- The recruitment of the most talented researchers from all groups;

- An improvement in the quality of the educational training environment;

- A balanced perspective in setting research priorities;

- An improved capacity to recruit subjects from diverse backgrounds into clinical research protocols;

- An improved capacity to address health disparities.

***Why is it important that NINDS T32 programs be involved in training a diverse neuroscience workforce?***

T32 programs offer a peer-reviewed, high quality NIH training environment in which to train diverse fellows. The institutional nature of a T32 program provides diverse trainees with an accomplished mentoring team to work with and an integrated cohort in which to belong. In contrast to support on an individual research grant, the structure of a T32 provides built-in accountability and oversight of a trainee's progress and outcomes. Moreover, T32 programs are often involved in trainee recruitment and standard-setting for larger university or department efforts, which put the program in a good position to foster opportunities, increase awareness and create a strong environment for diverse individuals. Finally, T32 programs can involve diverse individuals in their training program activities, regardless of the individual funding source of the trainee.

Staff from the NINDS Office of Training, Career Development and Workforce Diversity met with NINDS T32 Principal Investigators (PIs) to discuss strategies to improve the recruitment and retention of diverse trainees. To facilitate attendance by as many PIs as possible, two identical meetings were held, one at the University of California-Los Angeles on February 8, 2012 and one at the Children's Hospital of Philadelphia on March 21, 2012. There were over 75 attendees between the two meetings, composed of both T32 PIs and University Officials. The agenda included discussion of 1) NINDS expectations for programmatic activities, progress reports and renewals, 2) resources for recruitment and retention of diverse trainees and 3) the ways in which NINDS could help T32 PIs succeed in diversity recruitment and retention.  The meetings also provided a forum for NINDS to receive feedback from the T32 PIs, and T32 PIs to discuss various training-related issues among themselves.  The following provides a brief synopsis of the guidance and resources discussed at the meetings with regard to

diversity recruitment and retention. A companion document provides a synopsis of NINDS expectations for T32 programs and NINDS T32 review.

***How should I define diversity for the T32 program?***

T32 programs must provide a plan for increasing the recruitment and retention of trainees from underrepresented racial and ethnic groups, as well as individuals with disabilities. In addition, they must demonstrate successful efforts at training these groups. Both the programmatic plan and success in recruitment and retention are expected to address historically excluded groups that have a quantified underrepresentation specific to neuroscience (2009 Survey Report Neuroscience Departments and Programs).   Training grant programs that support only graduate-level students and/or postdoctoral fellows are not required to submit a recruitment and retention plan addressing disadvantaged individuals.   As with all NRSA support, trainees who are directly supported by the training grant must be citizens or noncitizen nationals of the United States or have been lawfully admitted for permanent residence at the time of appointment.

***Expectations of NINDS T32 Programs for Recruitment and Retention Plans to Enhance Diversity***

(For guidance on general NIH expectations and policies with regard to recruitment and retention plans, see NIH OER FAQs.)

1. ***Recommendation from the Strategic Planning Advisory Panel on Workforce Diversity regarding NINDS T32s (October 2010)***
   *"Because the number of URM Ph.D.'s is relatively small, most programs document their efforts, but ultimately take the position that, despite these efforts, they are **unable to find suitable candidates**. The Sub-Committee strongly believes that this is **no longer an adequate response**. We strongly recommend that **NINDS require both a** demonstrated record of success in diversity for the institution's training programs and a successful program of mentorship as a necessary precondition for receiving an award.*"

2. Implementation by NINDS
   All NINDS T32 programs must actively seek talented, diverse investigators.  Both excellence **and** diversity are critical – neither should be sacrificed for the other. Programs will be evaluated for both their plans and their success.  Certainly, not all programs, new or renewal, will currently have a "demonstrated record of success" upon application. However, all programs must have a realistic, pro-active plan for increasing the number of diverse individuals who receive and benefit from the training program.  This plan should evolve with experience, and will be expected to result in a record of success within a reasonable period of time.

   A realistic plan that would be expected to yield positive results will be required for funding (the plan does not affect the overall impact score, but must be deemed acceptable prior to funding).  In competing continuation applications, program performance will factor into the overall impact score.

The following is a summary list of requirements with respect to T32s and diversity:

- Competing continuation and non-competing applications must include a detailed account of experiences in recruiting individuals from underrepresented groups during the previous funding period. Information must be included on aggregate information on the distribution of:
  - Students or postdoctorates who applied for admission or positions within the department(s)/programs(s) relative to the training grant,
  - Students or postdoctorates who were offered admission to or a position within the department(s)/program(s),
  - Students actually enrolled in the academic program relevant to the training grant,
  - Students or postdoctorates who were appointed to the research training grant.
- The program should demonstrate commitment and proactive recruitment efforts.  Both the institution and the specific training grant program (e.g., program director and faculty) should be involved in the effort.
- With respect to retention and transition, the T32 Program Director must present an oversight plan that will ensure appropriate mentoring and pursuit of scholarly benchmarks such as publishing and submission of competitive grant applications. As with all trainees, each individual should leave the training program with competitive credentials, which include first author publications in high quality journals.
- The plans for recruitment and retention should be evaluated on a yearly basis.  If these plans fail to achieve success, changes should be made in response to the experiences of the program. All progress reports must present a detailed description of recruitment and retention practices, experiences and outcomes.  They should also include a description of planned changes in the diversity plan (what needs to be tweaked, what new efforts need to be made and what efforts will be eliminated).
- It is important that progress reports describe outcomes from both successful and unsuccessful recruitment strategies. NINDS expects that awareness and knowledge of both helpful and less impactful interventions will benefit the greater NINDS T32 community.  While there is no single best practice for all environments, the lessons learned among programs will spread ideas, generate new approaches and ultimately facilitate success among the training programs.

Some programs have already made significant progress in the recruitment and retention of diverse trainees. For others, the progress is much slower and much more sporadic.  NINDS does not expect instant success, but does expect phased-in improvements.  The evaluation of program achievement, both in peer review and at the program level, will factor in the starting baseline on a case by case basis. It is important, in all applications, that the PI be clear on where the program is with respect to diversity, and what actions are expected to improve diversity outcome. We often hear, *"My science is a niche area with very small numbers - how will I be judged?"*  Always keep in mind, small numbers can be useful

when you are in the business of small numbers. Again, PIs should be very careful to explain their situation and their efforts to improve success.

3. <u>Inclusion of all T32-related program trainees in diversity effort, regardless of funding source</u>
   NINDS recognizes that the diversity training impact from a T32 program can be broader than just the financial "slots" provided.  The ultimate goal of diversity efforts at NINDS is to increase diversity in the neuroscience workforce, and programs will be evaluated with respect to this goal. We recognize that there are institutional, individual and state-wide programs that provide resources to increase the representation of diversity researchers; the training grant is only one mechanism by which to <u>directly</u> support diverse trainees.  Moreover, the T32 program can often be a source of recruitment of diverse trainees, even if those trainees are funded by another source. Although they receive funding from other sources, trainees may be full participants in the T32 programmatic activities. NINDS encourages T32 PIs to include trainees that **fully participate** in their program in all discussions of diversity efforts. All those claimed to be a part of a T32 program should be fully and demonstrably active in the specific activities associated with the program and must benefit fully from the resources, mentoring and network the program offers.  The listed individuals cannot be loosely associated with the program; they must be students or postdocs fully embedded in the T32 environment.  In addition, T32 PIs are welcome to explain the success of a larger program (for example, a department program in which the applicant's training grant resides). The goal is to clearly portray the efforts and success of the training grant faculty in diversity recruitment and retention, regardless of funding source. It is important, both in progress reports and competing applications for PIs to fully explain programmatic (not institutional) efforts to enhance diversity of the workforce.

   The efforts and success of a program will be considered at both the peer review and program level. PIs should provide a detailed explanation of their efforts and success in recruitment and retention, describe how many diverse trainees are financially supported by the T32, and how many by other sources (and describe those sources). However, PIs must be careful not to "double dip." Multiple T32 programs may not claim "credit" for the recruitment, retention and success of the same diverse individuals at the same stage of career.  Each may describe broader programmatic efforts, as long as these are clearly labeled as such. Each program, however, has individual responsibility for contributing to the endeavor.

*You need a Diversity Strategy, Not Just a Plan*

- There should be institutional efforts and support for diversity recruitment and retention beyond an isolated T32. These activities should be described in all applications and progress reports.
- Selection at the level of graduate school admission often determines what your choices are for a predoctoral T32 program.  Even advanced predoctoral training programs are encouraged to work with the institution in the admissions process in an effort to increase the diversity pipeline. Strategies for admission may mean using unconventional measures for your forecasting of what is a predicator of success (e.g. given the known racial/ethnic and gender differences for GRE scores this proxy may

provide a filter that does not reliably predict potential performance but limits the diversity pool), and training programs may be well suited to informing those involved in admissions about predictors of success. Developing a suitable admissions strategy does not require a lowering of standards but, rather, taking a holistic approach to the admission process. Programs, should also consider developing relationships with [feeder schools that serve a significant number of diverse students](#). Expanding the pool of diverse applicants will undoubtedly expand the yield.

- Most successful recruitment activities take place before students are actively looking for a program. The greatest success will occur if you create on-going relationships thru summer programs, seminars, personal contacts or scientific collaborations with universities or programs that have significant number of diverse students. When you travel to an institution to speak, ask to meet with all the students you can, and request a strong effort on the part of the host institution to have diverse students and postdocs to meet with you. Keep in mind that establishing partnerships and contacts requires credibility and long term commitment on behalf of the T32 faculty and the T32 Institution. Perhaps the most successful recruiting strategy is personal contact and demonstration of a serious interest in trainee success. And of course, successful outcomes can become a huge recruitment tool.

- It is important to create a "diversity friendly" environment where everyone feels socially and intellectually integrated. The development of such an environment is often facilitated, and institutionalized, as faculty and science leadership positions become more diverse. In addition, it is important to include diverse speakers in departmental and campus-wide seminar series. Indeed, reviewer scoring of T32 applications is often influenced by this record of inclusion.

### Myth: "There are no qualified diversity students to recruit"

There is still a disparity of biomedical science representation when compared to the census and much work remains to be done in strengthening the pipeline from undergraduate→ graduate →postdoc→ faculty. **However**, a highly qualified pool of diverse students and postdocs does exist, many of whom have competed successfully in NIH [and NINDS-sponsored programs](#) for support of undergraduates, graduates and postdocs. A significant problem for many PIs is in **creating the bridges and connections** to this talented student pool.

### How do I find students? How can NINDS help?

1. A great way to meet outstanding diverse students and postdocs is at meetings and poster sessions at national conferences with a high attendance of underrepresented students, such as the [Annual Biomedical Research Conference for Minority Students (ABRCMS)](#) and the [Society for Advancement of Chicanos and Native Americans in Science (SACNAS)](#). Sending students and postdocs to these meetings, in addition to faculty, can be a very successful recruitment strategy. These meetings offer the opportunity to meet in-person and engage scientifically with potential recruits, and there are opportunities to sign up to judge poster or oral presentations by the students.

2. Several NINDS-supported programs also offer an opportunity to meet and engage diverse neuroscience-trained students and fellows (see table below). These programs support individuals with strong research

experience and academic profiles.  For those who are interested, Dr. Michelle Jones-London at NINDS is willing to initiate an introduction to the appropriate contact at the specific institutions or events.

**NINDS Sponsored Programs to Enhance Diversity of the Neuroscience Workforce**

| Name of Program and Website | Stage of Career | Program Summary | Networking Opportunity and NINDS Contact |
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| ENDURE | Undergraduates | Provides undergraduate training through partnerships between research-intensive institutions and institutions with a substantial enrollment of neuroscience majors from diverse groups. The goal is to prepare undergraduates to enter and successfully complete neuroscience Ph.D. programs. | Meet and view posters from over 70 undergraduate students at the SfN Annual Meeting, see past 2016 Program Booklet<br><br>Dr. Michelle Jones-London |
| SfN Neuroscience Scholars Program | Graduate<br><br>Postdoctoral | A mentoring and professional development three-year fellowship administered by the Society for Neuroscience to enhance career development and professional networking opportunities for underrepresented diverse graduate students and postdoctoral fellows in neuroscience. | Networking and ability to view the science of these talented individuals occurs each year at 1) the SfN Annual Diversity in Neuroscience Poster session and 2) the Diversity Neuroscience reception<br><br>Read about current Neuroscience Scholars or visit the Neuroscience Scholars Newsletter page<br><br>Dr. Michelle Jones-London |
| SNRP | Undergraduate | SNRPs are intended "to enhance the research capacity of a group of | |

| | Graduate | academic institutions that historically have not been major participants in NIH [neuroscience] programs- specifically, institutions with predominantly minority student enrollments. | Dr. Al Gordon |
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3. Additionally, the National Institute of General Medical Sciences (NIGMS) offers a rich resource for connecting to **a pool of diverse undergraduates that have participated in a research program**. The interactive maps associated with each of the programs below provide information for possible geographic partnerships and places to target recruitment:

- MARC Undergraduate Student Training in Academic Research (U-STAR) Awards (T34) - provide support for undergraduate students who are underrepresented in the biomedical and behavioral sciences to improve their preparation for high-caliber graduate training at the Ph.D. level. Interactive map of participating Institutions.

- Research Initiative for Scientific Enhancement (RISE) Program (R25)- RISE is a student development program for minority-serving institutions. Interactive map of participating Institutions.
- Initiative for Maximizing Student Development (IMSD) Program (R25)- a student development program for institutions with research-intensive environments. The goal of the program is to increase the number of students from underrepresented groups in biomedical and behavioral research who complete Ph.D. degrees in these fields. Interactive map of participating Institutions.

**Additional Resources**

| Reports/Studies on Effective Recruitment/Retention Strategies |
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| **NIH Advisory Committee to the Director Working Group on Diversity in the Biomedical Research Workforce** <br> **Link: http://acd.od.nih.gov/dbr.htm** |
| **Lewis, Dwight. *Sloan Guide for the Successful Recruitment of Minority Students into Science and Engineering Ph.D. Programs (2<sup>nd</sup> Edition). (2009). West Lafayette, IN: Dwight Lewis.*** <br> **Link: http://www.nacme.org/user/docs/Sloan%20ManualFinallast%20_3_.pdf** |
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| **Committee on Underrepresented Groups and the Expansion of the Science and Engineering Workforce** |

Pipeline; Committee on Science, Engineering, and Public Policy; Policy and Global Affairs; National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. *Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads* (2011). Washington, DC: National Academies Press. Link: http://www.nap.edu/catalog.php?record_id=12984

American Speech-Language-Hearing Association. *Minority Student Recruitment, Retention and Career Transition Practices: A Review of the Literature.*

Link: http://www.asha.org/practice/multicultural/recruit/litreview.htm

Note: Includes good list of references

Capomacchia, Anthony C. & Garner, Solomon T*. Challenges of Recruiting American Minority Graduate Students: The Coach Model.* American Journal of Pharmaceutical Education, 2004: 68 (4), Article 89

Link: http://www.ajpe.org/view.asp?art=aj680489&pdf=yes

Council of Graduate Schools. *Broadening Participation in Graduate Education.* 2009. Washington, DC: Council of Graduate Schools*.*

*Link:* http://www.cgsnet.org/broadening-participation-graduate-education-0

Williams, Keith. The Potential Role of Minority Student Organizations in the Recruitment and Retention Process at Urban Universities. 2002. Lincoln, NE: University of Nebraska.

Link: http://digitalcommons.unl.edu/pocpwi7/10/

Secrets to Success in Recruiting Minority Students into Science

Link: http://newswise.com/articles/secrets-to-success-in-recruiting-minority-students-into-science?ret=/articles/list&channel=&category=life&page=1602&search%5Bstatus%5D=3&search%5Bsort%5D=d

Committee for the Assessment of NIH Minority Research Training Programs, Oversight Committee for the Assessment of NIH Minority Research Training Programs, Board on Higher Education and Workforce, National Research Council. *Assessment of NIH Minority Research and Training Programs: Phase 3.* (2005). Washington, DC: National Academies Press

Link: http://www.nap.edu/catalog/11329.html

US Dept of Education List of Postsecondary Institutions Enrolling Populations with Significant Percentages of Minority Students

Link: http://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html

## Organizations of/for Diversity in Science

Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)

Link: http://sacnas.org/

Annual Biomedical Research Conference for Minority Students (ABRCMS)

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| **Link:** http://www.abrcms.org/index.html |
| **FASEB Society Programs for Underrepresented Students and Scientists**<br>Link: http://www.faseb.org/Policy-and-Government-Affairs/Science-Policy-Issues/Training-and-Career- Opportunities-for-Scientists/Resources-to-Enhance-Diversity-in-Science.aspx |
| **FASEB Minority Access to Research Careers Program**<br><br>**Link:** http://www.faseb.org/Marc/MARC-and-Professional-Development.aspx |
| **National Science Foundation Research Experiences for Undergraduates (REU) Program**<br>**Link:** http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517&from=fund |
| **Council of Graduate Schools Inclusiveness Initiatives – includes multiple projects and reports**<br>**Link:** http://www.cgsnet.org/member-service/inclusiveness |
| **AAAS projects on diversity:**<br>**Link:** http://www.aaas.org/programs/education/CareersAll/index.shtml<br>**See especially**<br>**\* MySciNet – "a place for scientists and students from diverse backgrounds to network and build the personal and professional connections needed to succeed in the sciences."**<br>**Link:** http://community.sciencecareers.org/myscinet/ |
| **\* AAAS Center for Advancing Science and Engineering Capacity: seeks to reinforce those bonds. As a human resource development consulting service, it provides institutions of higher education with assistance in achieving their educational mission in STEM fields.**<br>**Link:** http://php.aaas.org/programs/centers/capacity/index.php |
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**NINDS T32 Regional Meeting Slide Presentations**

Presentation by Dr. Joel Oppenheim (NYU School of Medicine) – *Recruitment of Underrepresented Minority Students to NYUSOM/Sackler Institute – A Model for Diversity*

Date Posted: April 4, 2013